

## ABSTRACT

A method for executing a software update of a control unit by flash programming a flash memory of the control unit having multiple segments via a serial interface, demands on the flash programming procedure being established, a sequence of the flash programming procedure being specified by a finite-state machine which defines states and transitions of the software, and availability, security, and reliability requirements of each state and each transition of the finite-state machine being checked. In addition, described are a corresponding finite-state machine and a computer program for automatically checking the availability, security, and reliability requirements.